

IN THE CLAIMS:

Please amend Claims 42, 69, and 70 as follows.

1.- 41. (Cancelled)

42. (Currently Amended) A method of preparing a gas distribution assembly for use in semiconductor processing equipment, wherein said method comprises:

a) providing a plurality of metal layers wherein said plurality of metal layers comprise a metal selected from the group consisting of a stainless steel, a corrosion-resistant nickel-comprising alloy, a corrosion-resistant cobalt-comprising alloy, and combinations thereof, wherein an average bonding surface roughness of each of said plurality of metal layers ranges from about 0.1 microinches Ra to about 30 microinches Ra ;

b) chemically or electrochemically etching at least one feature through at least one of said metal layers;

c) aligning said plurality of metal layers; and

d) diffusion bonding said plurality of metal layers, whereby a diffusion bonded gas distribution assembly is obtained which provides strong bonds that do not absorb or release process fluids, and that do not contribute to impurities in process fluids passing through said gas distribution assembly.

43. (Cancelled)

44. (Previously Presented) The method of Claim 42, wherein said plurality of metal layers includes a corrosion-resistant nickel alloy.

45. (Cancelled)

46. (Original) The method of Claim 42, wherein said metal layers to be diffusion bonded have a thickness within the range of about 0.0005 inch to about 0.06 inch.

47. (Original) The method of Claim 42, wherein said at least one feature includes a shaped through hole.

48. (Original) The method of Claim 47, wherein said shaped through hole is aligned with a shaped through hole in an adjacent layer prior to diffusion bonding, thereby forming a gas flow channel in said plurality of metal layers after diffusion bonding.

49. (Original) The method of Claim 42, wherein at least one layer of said plurality of metal layers includes at least one shaped through hole which is adapted for mounting of at least one component.

50. (Previously Presented) The method of Claim 42, wherein said method includes aligning and diffusion bonding at least a portion of a component device into said plurality of metal layers, as said metal layers are diffusion bonded.

51. (Original) The method of Claim 50, wherein said at least one component device is selected from the group consisting of manually operated valves, automatic valves, pressure and temperature sensors, flow controllers, filters, pressure regulators, check valves, metering valves, needle valves, and purifiers.

52. (Previously Presented) The method of Claim 42, wherein each of said metal layers is 400 series stainless steel, and wherein diffusion bonding is performed at a temperature within the

range of about 1000°C to about 1300°C, at a pressure within the range of about 3000 psi to about 5000 psi, for a time period within the range of about 3 hours to about 6 hours.

53. - 68. (Cancelled)

69. (Currently Amended) The method of Claim 42, or Claim 44, or Claim 52, or Claim 71, or Claim 72, or Claim 73, wherein the average bonding surface roughness of said plurality of layers ranges from about 0.5 microinches Ra to about 10 microinches Ra.

70. (Currently Amended) The method of Claim 69, wherein the average bonding surface roughness of said plurality of layers ranges from about 1.5 microinches Ra to about 3 microinches Ra.

71. (Previously Presented) The method of Claim 44, wherein said corrosion resistant nickle alloy composition includes the following elements at a maximum concentration weight %, 56 % Ni; 22 % Cr; 13 % Mo; 3% W; 3 % Fe; 2.5 % Co; 0.50 % Mn; 0.35 % V; 0.08 % Si; and 0.010 % C, and wherein diffusion bonding is performed at a temperature within a range from about 1000 °C to about 1300 °C at a pressure within a range of about 8,000 psi to about 10,000 psi, for a time period within a range of about 3 hours to about 6 hours.

72. (Previously Presented) The method of Claim 44, wherein said plurality of metal layers includes a corrosion resistant nickle alloy of a composition which includes the following elements at a maximum concentration weight %, 56 % Ni; 22 % Cr; 13 % Mo; 3 % W; 3 % Fe; 2.5 % Co; 0.05 % Mn; 0.35 % V; 0.08 % Si; and 0.010 % C, wherein said plurality of metal layers also includes 400 series stainless steel layers, and wherein diffusion bonding is performed at a temperature ranging from about 1000 ° C to about 1300 ° C, at a pressure within the range of

about 4000 psi to about 10,000 psi, for a time period within the range of about 3 hours to about 6 hours.

73. (Previously Presented) The method of Claim 42, wherein said plurality of metal layers includes a corrosion resistant cobalt alloy of a composition which includes the following elements at a maximum concentration weight %, 41 % Co; 21 % Cr; 16 % Ni; 11.4 % Fe; 8 % Mo; 2.5 % Mn; and 0.15 % C, wherein said plurality of metal layers also includes 400 series stainless steel layers, and wherein diffusion bonding is performed at a temperature ranging from about 1000 °C to about 1300 °C, at a pressure within the range of about 4000 psi to about 10,000 psi, for a time period within the range of about 3 hours to about 6 hours.